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# Factors that Affect Adolescent Adherence to Mental Health and Psychiatric Treatment: a Systematic Integrative Review of the Literature

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**Abstract**

**Background:** Although adherence to somatic treatment has been studied extensively, adherence to mental health treatment has not. In this study, the term *treatment adherence* is used to refer to adherence to medication regimes and other non-pharmacological recommended treatments as part of mental health and psychiatric care. Knowledge of factors connected to adolescents' adherence to such treatment is fairly fragmented. Although treatment staff members are broadly aware of the factors that influence adherence, it would be desirable to develop formalized treatment assessment and planning approaches that specifically take these factors into account.
**Objective**: The purpose of this article is to review the available data related to factors that affect adolescents' adherence to both medication and non-pharmacological treatments in mental health and psychiatric care.
**Methods:** A systematic literature search that involved four databases was undertaken. A thematic analysis was conducted on 17 studies to extract relevant information.
**Results:** It appears that an adolescent's own positive beliefs toward his or her treatment are the main factor that improves his or her adherence to that treatment. Good cohesion with close supportive people appears to be positively related to adherence, whereas sociodemographic characteristics (e.g., race, gender) were not related.
**Conclusions:** By identifying the factors related to the treatment adherence of adolescents, this review article can provide guidance to help improve the quality of care and thus further increase adolescents' satisfaction with their mental health and psychiatric treatment.

**Keywords:** adherence, adolescents, psychiatric nursing, mental health nursing, integrative review

## Introduction

Adherence among patients with chronic illnesses and somatic symptoms has been studied extensively (1). Alternatively, adherence to mental health treatment has been less studied, with the main focus being the medication adherence of adult patients (2-7). Kruse and Rohland have investigated adult outpatients' appointment attendance (8); Sellwood and colleagues have examined the influence of families in predictions of adult patient adherence (9); and Gonzales and colleagues have studied patients' adherence to referred mental health treatment (3). The knowledge of the factors that are connected to adherence is still fairly fragmented.

Medication non-adherence is related to medication-taking behavior and is therefore associated with poorer treatment outcomes (10). Although definitions of the term *adherence* vary in the current literature, it can be defined as the patient taking medication at least 75% of the time, with *non-adherence* used to describe the situation when medication is taken less than 25% of the time (11). Furthermore, the term

*service engagement* can be defined as a multifactorial process that involves the acceptance of treatment and collaboration with a shared goal of recovery (12). The period between discharge from inpatient care and engagement with follow-up treatment is especially critical; it is also a vulnerable time for patients with mental illness who require long-term care (8). Especially among adolescents, more information is needed to understand the factors that contribute to readmission (13). According to Gearing and colleagues (14), approximately a third of adolescents do not complete recommended psychosocial treatment.

Generally, the main treatments used in mental health care are medications and referrals for special treatment (3). It is without question that patients' experiences of treatment (e.g., during the acute phase of a psychotic disorder) can have an impact on their long-term outcomes (15). Several studies involving various populations and settings have found a connection between patients' adherence to treatment and physician–patient communication. Good and effective communication in medical care correlates with better patient adherence to treatment (16). It has been found that adolescents' satisfaction with treatment is connected to the service environment and to the organization of services. There are increasing demands to involve adolescents in the development of their mental health care; to meet these demands, caregivers need to learn more about patients' views related to such care (17).

Adolescence is a period of rapid physical, psychological, and social development. Although these changes can induce a range of uncommon symptoms and illness patterns, they also present unique challenges for communication and management (18). These issues must be addressed when treating adolescents with mental health problems and managing their treatment adherence. Because adolescents are growing into adulthood and becoming increasingly independent of their parents, they are more willing than children to make decisions and major life choices for themselves; this can make it difficult to induce them to adhere to prescribed treatment regimes (19). Non-adherence to treatment can lead to illness relapses, readmissions to the hospital, and other harmful reactions (20). Non-adherence is a particularly common problem in mental health care, so there is a need to systemically investigate treatment adherence among adolescents as well as the factors that influence such adherence. As a result of the unique aspects of adolescence as a developmental stage, adherence among adolescents should be examined separately from adherence among adults and children.

In this systematic integrative review, we will focus on the factors related to adolescents' adherence to medication and non-pharmacological treatment in mental health and psychiatric care. Within the context of this article, the terms *adherence, compliance, persistence,* and *therapeutic alliance* will be used to describe the subject being investigated. The term *adherence* was the most prevalent term used in the studies that were reviewed. The literature was evaluated to identify the factors that relate positively or negatively to adolescents' adherence to treatment. For the purposes of this article, an *adolescent* is someone between the ages of 12 and 19 years, and *treatment* describes all methods that have been used to address an adolescent's mental health symptoms, including both medication and non-pharmacological treatments.

## Methods

### *Search Strategy and Process*

We conducted a systematic search of four databases—MEDLINE, CINAHL, PsycINFO, and Cochrane—for the following keywords: *1) Subject headings*: patient compliance, treatment compliance, mental disorders, psychiatric hospitals, psychiatric nursing, psychiatric nurses, psychiatric patients, psychiatry, adolescent psychiatry, preventive psychiatry, community psychiatry, psychoanalysis, psychosomatic medicine, adolescence; and *2) Other search terms:* adheren*, therapeutic alliance, cooperat*, co-operat*, complian*, adolescen*, teen*, young.

Studies with the following characteristics were included: 1) empirical; 2) published between 1990 and September 2014; 3) focused on adolescents between the ages of 12 and 19 years; 4) about both adolescents and children or adults but with results for adolescents presented separately; 5) about adolescents with mental health problems or illnesses; and 6) about adherence to treatment (including adherence to medication and other recommended treatments, including therapy, appointments, and certain treatment programs). Studies were excluded if they primarily focused on the following: 1) criminal psychiatry, forensic psychiatry, substance abuse, sexual problems, or neuropsychiatric illnesses; 2) adolescents with anorexia nervosa with no secondary diagnosis of mental illness or anorexia nervosa treatment adherence with adherence defined entirely in terms of body weight (with no attempt made to investigate mental health issues); and 3) child, adult, or geriatric psychiatry. In addition, a study conducted by the authors was excluded to avoid

problems of objectivity and to increase the review's validity (21).

A total of 1042 papers were identified from the searches, with 1025 excluded after reading the title (n = 572) and then removing duplicates (n = 57); after reading the abstract (n = 183); after reading the full text (n = 205; 1 paper was not available for assessment); and after a quality assessment (n = 7) (Figure 1). The two authors read 24 papers to assess their quality and their contents in the context of the research questions posed for this systematic review. We used the Joanna Briggs Institute's System for the Unified Management, Assessment and Review of Information package validity checklists (22), which include the standard critical appraisal instruments for specific study designs: experimental studies, interpretive and critical research, narratives, opinion and textual papers and observational studies (23). Seven papers were excluded chiefly as a result of poor descriptions of methods or results that included very little information about adolescents' adherence. A total of 17 studies were reviewed, and all included articles had to meet the criteria of quality appraisal. The authors discussed the quality appraisal and each others' assessments. They had a mutual understanding that articles would not be included if they did not provide a clear description of the methods used or presented results were not clearly based on the research questions of this systematic review.

*Data Analysis*

Of the studies included, 16 (94%) were quantitative. However, they were not sufficiently homogenous to allow for statistical pooling for meta-analysis. A thematic analysis was conducted on all 17 studies to extract all relevant information. Thematic analysis involves searching for themes and thus is a method used to identify, analyze, and report on the themes found within the data. It is a tool that is used to organize the data in detail (24).

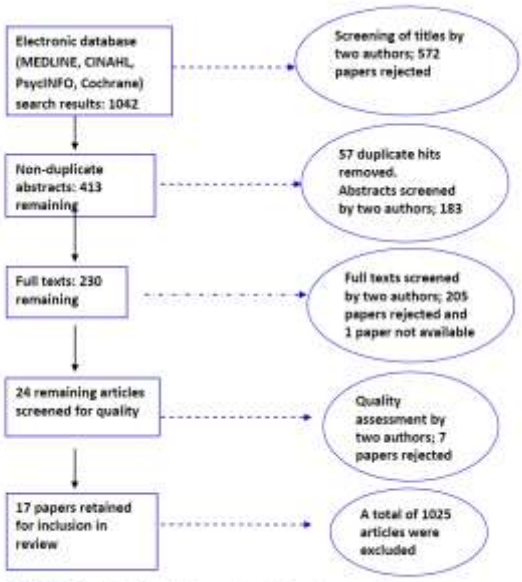


FIGURE 1. Flowchart showing the systematic literature search process

The analysis followed five steps: 1) the identification of all relevant information; 2) the listing of this information (sentences pulled from the articles); 3) the coding and summarization of this information into a simpler format; 4) the categorization of the different codes by theme; and 5) the further review and refining of the themes to determine the main factors. Finally, coded material was quantified via the enumeration of the occurrences of each theme. In this integrative systematic review, the themes determined by the thematic analysis are the presenting factors on which focus will be placed.

*Basic Characteristics of the Studies*

One of the studies used a mixed research method (25), whereas the rest (n = 16) used quantitative research methods. The majority of the studies (n = 13) examined adherence to medication (25-37), and one study dealt with treatment engagement (38). Three studies investigated the outcomes of treatment and adherence (39-41), and one study focused on adherence to therapy (32).

**TABLE 1**. Summary of Factors

| | Bernstein et al, 2000 | Bobier and Warwick, 2005 | Coletti et al, 2005 | DelBello et al, 2007 | Fontanella et al. 2011 | Ghaziuddin et al, 1999 | Granboulan et al, 2001 | King et al, 1997 | Moses, 2011 | Munson et al, 2010 | Patel et al, 2005 | Pogge et al, 2005 | Schimmelmann et al, 2006 | Steiner et al, 1990 | Stewart and Baiden, 2013 | Townsend et al, 2009 | Woldu et al, 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adolescent's cooperation (positive/poor) | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | +(m) | + | 0 | +(m) | 0 | 0 | 0 | 0 | 0 |
| Intensity of treatment | 0 | 0 | +(m) | 0 | 0 | 0 | +* | 0 | +(m)* | 0 | 0 | +* | 0 | 0 | 0 | 0 | 0 |
| Positive attitude | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | +(m)* | 0 | + | 0 | +(m) | 0 |
| Efficacy of medication (helpfulness/unhelpfulness) | - | 0 | 0 | - | 0 | - | 0 | 0 | +* - | 0 | + | + | 0 | + | 0 | 0 | + |
| Acceptance of medication | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Effectiveness of adherence/ nonadherence | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -* | 0 | 0 | 0 | +* -(m)* | 0 | +* | 0 | 0 | + |
| Higher socioeconomic status | x(m+t) | 0 | 0 | +(m) | 0 | x(m) | x | +(m) x | 0 | 0 | 0 | 0 | 0 | x | x | 0 | 0 |
| Higher incomes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | +(m+t)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Higher severity of symptoms | 0 | 0 | 0 | 0 | 0 | 0 | +* | -* | 0 | + | 0 | 0 | - | 0 | -* | 0 | 0 |
| Lower severity of symptoms | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -* | + | 0 | 0 | 0 |
| Diagnoses | -(m+t) | 0 | 0 | -(m)* | 0 | x(m) | 0 | x(m+t) | -(m) | 0 | 0 | -(m) (A) x(m) | - (B) x | +(C) x | 0 | 0 | 0 |
| Readmission | 0 | -(m)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -* | 0 | 0 |
| Risk-taking behavior | 0 | 0 | 0 | 0 | 0 | 0 | +* (D) x | 0 | x(m) | 0 | 0 | 0 | - x (E) | 0 | -* | 0 | 0 |
| Side effects of medication | x | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 0 | 0 | x | 0 | 0 | - | 0 | 0 |
| Lack of need for medication | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -* | 0 | 0 | - | 0 | 0 | -* | 0 | 0 |
| Low family/close friend solidarity | -(m+t) | 0 | 0 | 0 | 0 | 0 | x (F) | -(m+t)* | 0 | 0 | 0 | 0 | -* | 0 | -* | 0 | 0 |
| Mother's mental symptoms | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -(m+t)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parent/family support | 0 | 0 | +(m+t) | 0 | 0 | 0 | - | ≤ * (m+t) | +(m) | 0 | 0 | -(m) | 0 | 0 | 0 | 0 | 0 |
| Young age | x(m+t) | x(m) | x(m) | 0 | +(m)* (G) x | x | x | 0 | x(m) | - | 0 | 0 | x | x | 0 | 0 | - |
| Good education of adolescent/parent | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | +(m) | +* | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Race | x(m+t) | 0 | 0 | 0 | 0 | x(m) | 0 | 0 | 0 | 0 | x(m) | 0 | 0 | 0 | 0 | 0 | 0 |
| Gender | x(m+t) | 0 | 0 | 0 | 0 | x(m) | x | 0 | 0 | 0 | 0 | 0 | x | x | x | 0 | 0 |
| Family structure | 0 | 0 | 0 | 0 | 0 | x(m) | x | x | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Support of friends | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | x(m) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Medication type | 0 | 0 | 0 | 0 | 0 | x | 0 | 0 | 0 | 0 | x | x | x | 0 | 0 | 0 | - |
| Initiation of treatment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | x(m) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | x |
| History of mental symptoms or illness | 0 | x | 0 | 0 | 0 | 0 | x | 0 | 0 | 0 | 0 | 0 | x | x | 0 | 0 | 0 |
| Symptoms/own feelings about symptoms | 0 | 0 | 0 | 0 | 0 | 0 | x | 0 | 0 | x | 0 | x(m) | x | x | 0 | 0 | x |
| School/work | x(m) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | x | 0 | 0 | 0 | 0 |

*Note. A,* substance use disorder; *B,* with a diagnose of other psychoses; *C,* secondary diagnoses of depression; *D,* illicit drug use; *E,* substance use at baseline; *F,* Family relationships; *G,* on acute phase; *m,* medication adherence; *m+t,* adherence to medication and non-pharmacological treatment; +, positive relation; - , negative relation; *x,* not related; ≤, is related; * , significant *p*-value (≤ 0.01); 0, not mentioned

Adolescents were outpatients in 14 studies (25-26;28-34;36-37;39-41) and inpatients of a psychiatric center or ward in 6 studies (27;29-30;33;35;38).

## Results

Detailed information about positively and negatively related factors is presented in Table 1. Factors have been noted with "(m)" if there is a relationship to medication treatment and with "(m+t)" if there is a relationship to both medication and non-pharmacological treatment. However, there is no specific indicator for factors that are related to non-pharmacological treatment only. The themes show the related factors, which are listed in the table.

## Related Factors

*Adolescent's Positive Beliefs*

These beliefs include an adolescent's willingness to undergo treatment and his or her acceptance of treatment, both of which were positively associated with adherence. The willingness to undergo treatment includes positive cooperation, intensity of treatment, and positive attitude. The acceptance of treatment includes medication helpfulness, the acceptance of medication, and the effects of adherence (see Table 1).

*Life Situation and Close Relationships*

Life situation and close relationships includes socioeconomic factors, the cohesion of close people, and age and education. Socioeconomic factors include the socioeconomic status and income of the adolescent's family. The cohesion of close people encompasses the level of solidarity of family and close friends, the mother's mental health, and the level of support available from parents and other family members. Age and education includes young age and good education (see Table 1).

*Adolescent's Illness and Feelings toward Treatment*

This category includes an adolescent's symptoms and his or her negative feelings toward treatment. An adolescent's symptoms can be divided into higher and lower severities of symptoms, certain diagnoses, readmissions, and risk-taking behaviors (including the consumption of tobacco, alcohol, and drugs). Negative feelings are influenced by the side effects of the prescribed medication, the perceived unhelpfulness of the prescribed medication, feelings that the prescribed medications are unnecessary, poor cooperation with the therapist, and the effects of non-adherence (see Table 1).

## Unrelated Factors

*Adolescent's or Family's Life Situation and Social Environment*

The life situation and the social environment include socioeconomic, demographic, and social environment factors. Socioeconomic factors include school, work, and socioeconomic status. Demographic factors can be further divided into race, gender, and age. Social environment factors include the structure of the family and the support of friends (see Table 1).

*Adolescent's Treatment and Illness*

The adolescent or his or her family's treatment and illness category includes treatment and illness factors. Treatment can be further divided into medication type, initiation of treatment, and side effects. Illness factors include the adolescent's history of mental illness or its symptoms, risk-taking behavior (including tobacco, alcohol, or drug use; fighting; and absence without leave), certain diagnoses, and symptoms as well as his or her own feelings about those symptoms (see Table 1).

A summary of the main results is presented in Figure 2.

## Discussion

This systematic integrative review identified factors that were related positively or negatively to adolescents' adherence to medication and non-pharmacological treatment in mental health and psychiatric care. The main factor that was found to improve adherence to treatment was the adolescent's positive beliefs about and therefore acceptance of the prescribed treatment. This finding is in accordance with those of Bollini and colleagues (42) for depressive adults; they reported that one key aspect of medication adherence is acceptance of the diagnosis and treatment. Passive acceptance in adults might be related to attitudes toward taking prescribed medication during inpatient treatment; however, attitudes can change after discharge (43). Adolescents prefer to be treated as individuals and in a non-judgmental manner—in other words, as people rather than as patients (13,16). This type of treatment may influence the desire of adolescents to participate in the referred and prescribed regimens. For example, it has been suggested that more contact with mental health professionals improves treatment adherence among adolescents (44) and that better-scheduled appointments increase adherence (8). This

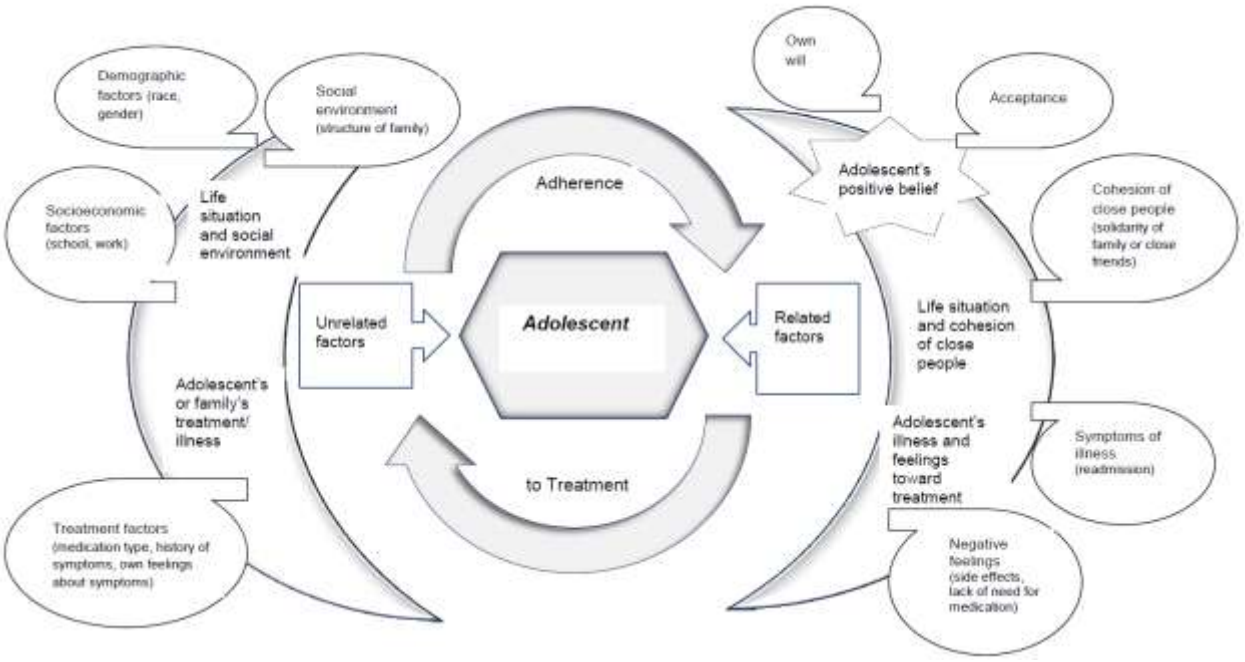


**FIGURE 2.** Summary of Main Results

suggestion is in line with the findings of this systematic review, in which adolescent's own will to undergo treatment was found to be one key factor that supported adherence.

It has also been found that good and planned patient education has an important effect on medication adherence among patients in somatic care (45). According to Gonzales and colleagues (3), a greater readiness to engage in treatment will improve short-term adherence, and adherence is improved when the patient understands the potential benefits of treatment. However, a young person with mental illness may experience individual discrimination or rejection in their social environment (46). It has been found that increases and decreases in depressed symptoms immediately after treatment changes are related to patient expectations. Among adults, patients who continued to take antidepressant medications as well as those who were switched to placebos had higher mean depression rating scale scores (47). However, more highly motivated patients showed greater responses to placebos as compared with less motivated patients, which highlights the importance of the patient's own level of motivation (48).

An adolescent's negative feelings toward side effects, the perceived unhelpfulness of the medication, and the patient's poor cooperation with health care professionals undermine treatment adherence. A strong working alliance between adult patients and their therapists is consistently positively related to medication adherence by those with psychotic disorders (49). The presence of a cooperative attitude and insight into the illness process are some of the main factors related to medication adherence when the patient is well (50). However, Bollini and colleagues (42) noted that, after patients knew about expected side effects, their reactions were not particularly negative.

We found that low solidarity among the family members or close friends of the patient had a negative influence on the adolescent's adherence to treatment. Families' experiences of caring for adult relatives with bipolar illness have been shown to indirectly influence the patient's medication adherence (51). However, in a study of schizophrenic patients (9), the carer's knowledge of the illness was not related to the patient's adherence, although the carer's experienced emotions were related negatively to the patient's adherence. Nevertheless, parental or family support was found to be both positively and negatively related to treatment adherence in this systematic review.

Different effects of severity of illness were reported with respect to their influence on treatment adherence. Increased severity of illness was associated with a higher risk of readmission among adolescents (13). Sellwood and colleagues (9) found that overall

symptom severity was not related to non-adherence, but they also found that non-adherent patients tended to have more severe psychotic symptoms as compared with adherent patients. The severity of positive psychotic symptoms was not significantly associated with adherence (49). Readmission is also negatively associated with adherence, because adherent patients have a reduced risk of rehospitalization (13).

Although our results showed socioeconomic status to be related to adherence to medication in two studies, several studies have stated that there is no such relationship. However, higher levels of education, income, and socioeconomic status of the family positively influence adult adherence (7). Bulloch and colleagues (2) have stated that age is not a predictor of non-adherence among adult patients and that, instead, forgetfulness is the main reason for poor adherence.

The findings of this systematic integrative review suggest that several factors can have either positive or negative influences on an adolescent's adherence to medication or non-pharmacological treatment. The inconsistent findings of studies of this subject are probably partly explained by differences in the study characteristics, including the treatment settings of adolescent care and the types of prescribed treatment. In particular, whether adolescents are treated in inpatient or outpatient settings may influence adherence. Outpatients must take on more responsibility than inpatients in terms of taking their medication on time and attending scheduled meetings, and this may reduce treatment adherence among adolescents. Conversely, inpatient adolescents are assessed and monitored constantly by treatment staff, so it is easier to promote compliance. It is important to bear in mind that inpatients and outpatients have different conditions and treatment regimens that may contribute to the observed differences in adherence.

*Strengths and Limitations*

The strengths of this systematic integrative review are that it involved comprehensive literature searches with carefully determined selection criteria defined by the two authors and that it included only peer-reviewed studies. This systematic literature search was based on four databases: MEDLINE, CINAHL, PsycINFO, and Cochrane. One limitation may be that our search did not include Embase, with another limitation being that we may not have found all relevant studies. A total of 12 articles were excluded because their full text was not available or because they were written in languages that neither author could read nor fully understand. Although the search was not limited to only those studies written in English, non-English studies could not subsequently be used. Some studies were excluded because data related to adolescents' adherence were mixed with data for children or adults: our review only included studies that had clearly reported adolescents' adherence. This should have increased the validity and reliability of our review by ensuring that only the factors that specifically influenced adherence among adolescents were examined. However, the extent to which the factors that influence adherence among adolescents differ from those that influence adherence among children or adults may be somewhat debatable.

We excluded studies that focused on adolescents from the perspective of forensic or criminal psychiatry or that looked at adolescents who had been diagnosed with substance use problems, neuropsychiatric illnesses, or sexual problems to avoid including information about treatment adherence for conditions that are treated in very different ways. This decision was made in an effort to obtain as much consistent and generalized research information as possible about adolescents' treatment adherence in mental health and psychiatric care. One of the main challenges is that the concept of adherence varies both in the literature and across studies. We therefore tried to minimize the risk of obtaining fragmented research information that applied to adolescents' treatment adherence for different mental illnesses and numerous treatment methods. The exclusion criteria for this systematic review can thus be considered strengths, but they can be considered as limitations as well. It is possible that studies that investigated illnesses that many adolescents may have (e.g., attention-deficit/hyperactivity disorder) or that looked at adolescents in forensic psychiatry may have been missed. However, forensic psychiatry and the treatment of all neuropsychiatric illnesses can be quite different as compared with general mental health treatment or psychiatric care. We made a purposeful decision not to select one or two illnesses of adolescents from the exclusion areas, in order to be consistent with decided criteria.

This systematic integrative review was conducted in accordance with the guidelines of the Preferred Reporting Items for Systematic Review and Meta-Analyses (52). However, the protocol that was used has not been published previously. The current study sought to gather information about specific factors related to both medication and non-pharmacological treatment among adolescents in mental health and psychiatric care. The decision to separate adolescents'

medication and non-pharmacological treatment to investigate these treatments individually is a strength of this systematic literature review, because these treatment forms are different. Here, medication treatment includes prescribed medication only and therefore adherence to medication can be counted and examined. However, non-pharmacological treatment includes all other types of treatment, including appointments for different therapies with different clinicians at different outpatient clinics as well as one-on-one sessions with health care specialists and inpatient treatment (excluding medication treatment). This study provides detailed information about the treatment adherence of adolescents who are receiving both outpatient and inpatient care.

**Clinical Significance and Conclusions**

For prescribed treatment to be effective, it is essential for the adolescent patient to accept and want to undergo the treatment. Good social cohesion with close people also plays an important role. It is important for both the adolescent and his or her family to have positive feelings about the treatment. By identifying the factors that influence treatment adherence, this systematic review may serve as a source of guidance for improving mental health and psychiatric care quality and for increasing adherence and treatment satisfaction among adolescents. Treatment staff members are in the best position to establish active cooperation with adolescents and their families. Such efforts can improve adolescents' treatment adherence, thereby accelerating recovery, reducing treatment time, and preventing relapses. When treatment staff is made aware of the factors related to adherence, treatment assessment and planning improve. An adolescent's adherence to treatment can thus also be improved, which accelerates recovery, reduces treatment time, and prevents relapse. The majority of the articles included in this systematic review investigated adolescents who were receiving outpatient care and discussed medication adherence. More research is needed to investigate adolescent's adherence to treatment during inpatient care, with concentration on both medication and non-pharmacological treatment.

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